

Pseudoaccommodation in children

Background Some pseudophakic patients implanted with a monofocal intraocular lens (IOL) have good near visual acuity (VA) with their distance correction. The objective was to evaluate the prevalence of pseudo-accommodation in children after bilateral cataract surgery, without amblyopia, and to define its mechanisms.

Methods Observational study that took place in a pediatric ophthalmology department, Paris, France. A total of 68 eyes were included, 40 from 23 children and 28 from 14 adults, with a corrected distance VA above 20/25 and a normal near VA (20/25) with +3 addition. Pseudo-accommodation was defined as a near VA better than 20/50 with the distance correction and without addition. Prevalence of pseudo-accommodation was calculated in each group. In order to determine the possible mechanisms of pseudo-accommodation in children, we compared children with pseudo-accommodation and adults without pseudo-accommodation regarding several parameters: refraction, axial length, corneal topography, aberrometry, pupillary diameter and IOL shift after cyclopentolate instillation.

Results Among the children group, 36 (90 %) had pseudo-accommodation versus 2 (7 %) in the adult group. We found that spherical equivalent, implant power, corneal multifocality and corneal higher-order aberrations (mainly coma and trefoil) were significantly higher in the pseudo-accommodation group, while pupil diameter and implant shift were not significantly different.

Conclusions Pseudo-accommodation has a high prevalence among non-amblyopic pseudophakic children. Several possible mechanisms have been found to explain pseudo-accommodation in children: a high power of the IOL and a small axial length, maximizing the effect of the IOL shift, corneal multifocality and corneal higher-order aberrations.

Keywords Pseudo-accommodation · Pediatric cataract · Monofocal IOL · Aberrometry · Multifocality